



## **Python for Network Engineers Course Overview**

Python course is for network engineering experts who want to take their creative thought processes to the next level by writing code. This course will guide candidates how to write Python codes by developing a complete command-line application that will regularly retrieve device configurations, check code in to a version control system, and via mail receive configuration policy violation reports.

### **About the training**

- **Study Material:-** Online Live Lectures, Streaming Recorded Training Videos, Online Lab Workbook, and Remote Virtual Lab access.
- **Duration:-** 1 Months

### **Requirements**

No such formal prerequisites and no programming experienced is required still it is recommended you have basic networking skills

### **What will You Learn**

- Understanding Program using all the fundamentals of Python
- Use for loops, Conditionals various data types to create code for network Automation

### **Target Audience**

Any network Engineers who configure/manage network devices or implement in a Cisco enterprise can do this course.

### **About Instructor**

The instructor of this training is master in technology and has 8+ years of industrial experience in networking, programming, and automation. He has delivered vast and complex project on the same around the globe.

## **Course Content**

- Introduction
  - Python Overview
- Getting Started (Building Blocks - Theoretical Topics)
- Python Installations and IDEs Introduction
  - IDLE
  - Sublime
  - Pycharm
- Quick Start guide to Network Automation
- Python theory with different - Objects, Variables and Data Types
- Understanding Numbers
  - Operators Lab Examples
  - Floats Lab Examples
- Understanding Strings
  - Concatenation Lab Examples
  - Slice Lab Examples
  - Lower Upper Count etc
  - Other functions & methods with Practical LAB examples
- Understanding Comparisons tools
  - Boolean Lab & Examples
  - False conditions Lab Examples
- understanding Lists
  - Merge Lab Examples
  - Extend Lab Examples
  - Insert Lab Examples
  - Delete Lab Examples
  - Multi Function Scenario Labs
- Understanding Tuples
  - Operators on Tuples and Labs
  - Lab Scenarios
- Understanding Code Structures and Loops
  - If, Else and Else-if Logic and Loops
  - Multi Loops Logic Lab Scenarios
- Understanding While Loops
  - While Loops with continue statements
  - While loops with Nested list, else
  - More Lab Scenarios on Loops
- Understanding Advance Loops Concepts
  - Loops using dictionary
  - Loop using lists or ranges

- Lab Scenarios
- Understanding Dictionaries & Ranges
  - Lab Scenarios
- Understanding Functions
  - Introduction to Functions
  - Python File Handling Lab Examples
  - Open Function and Lab Examples
  - With Statement Lab Examples
- Understanding Telnet & SSH Scripts
  - Lab Scenario 1
  - Lab Scenario 2
  - Lab Scenario 3
- Python Scripts - Fetching Information from Cisco devices
  - Show version
  - Show running configuration
  - Other show commands
- Live Lab Scenarios - Python Scripts
  - Remotely Configure Device Interface Parameters
  - Remotely configure multiple vlans using Automation
- Remotely Saving configuration locally
- Lab Part - Pick outside IPs file from computer to Telnetting remote device
- Auto fill user credentials & remote execution
- Understand Netmiko
  - Introduction to Netmiko
  - Use SSH for Network Automation, Login to device through SSH rather than simple telnet using Netmiko
- Lab Practice Using Netmiko - Pick IPs from outside file from computer to Telnetting over device
- Receive user's input for credentials rather than hard-core onto script
- Configure NTP server and related configuration
  - Configure DHCP server and related configurations
- Pick configuration from outside file and execute over devices
  - Configure BGP peer-groups on all routers
  - Configure STP features like port-fast, uplink-fast, backbone-fast or root guard.
- Advance Python - Error-handling
  - Error handling
- Lab Example to check if device is a switch and router
- Checking device capability need to pick file from outside to execute as per devices specifications.
- Understanding NAPALM
  - Installation and Introduction
  - Jason Introduction
  - Napalm installation on windows

- Lab - Create a script to retrieve basic information ( like getting interface statics, counters,MAC table, ARP table,
  - Lab - Verifying internet connectivity using Napalm and JSON integration for readability
- Lab Scenario - Create a script to retrieve BGP information from one/multiple router
  - Getting BGP neighbors & count of received prefixes
  - Configure BGP configurations from basic to advance
- Use NAPALM for device configuration audit and changes
- Iteration Lab Examples label\_imporant Lab Scenario - Validate if particular configuration is already present over devices or not.
- Advance Lab Scenarios using F5 LTM
  - Introduction to API
  - Configure pool, pool-member and VS
  - Configuring Various load-balancing methods
  - Troubleshooting examples

**Note: \*\*\***Most of the course topics are covered with hands-on lab exercises and others are theoretical

**Thank You  
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